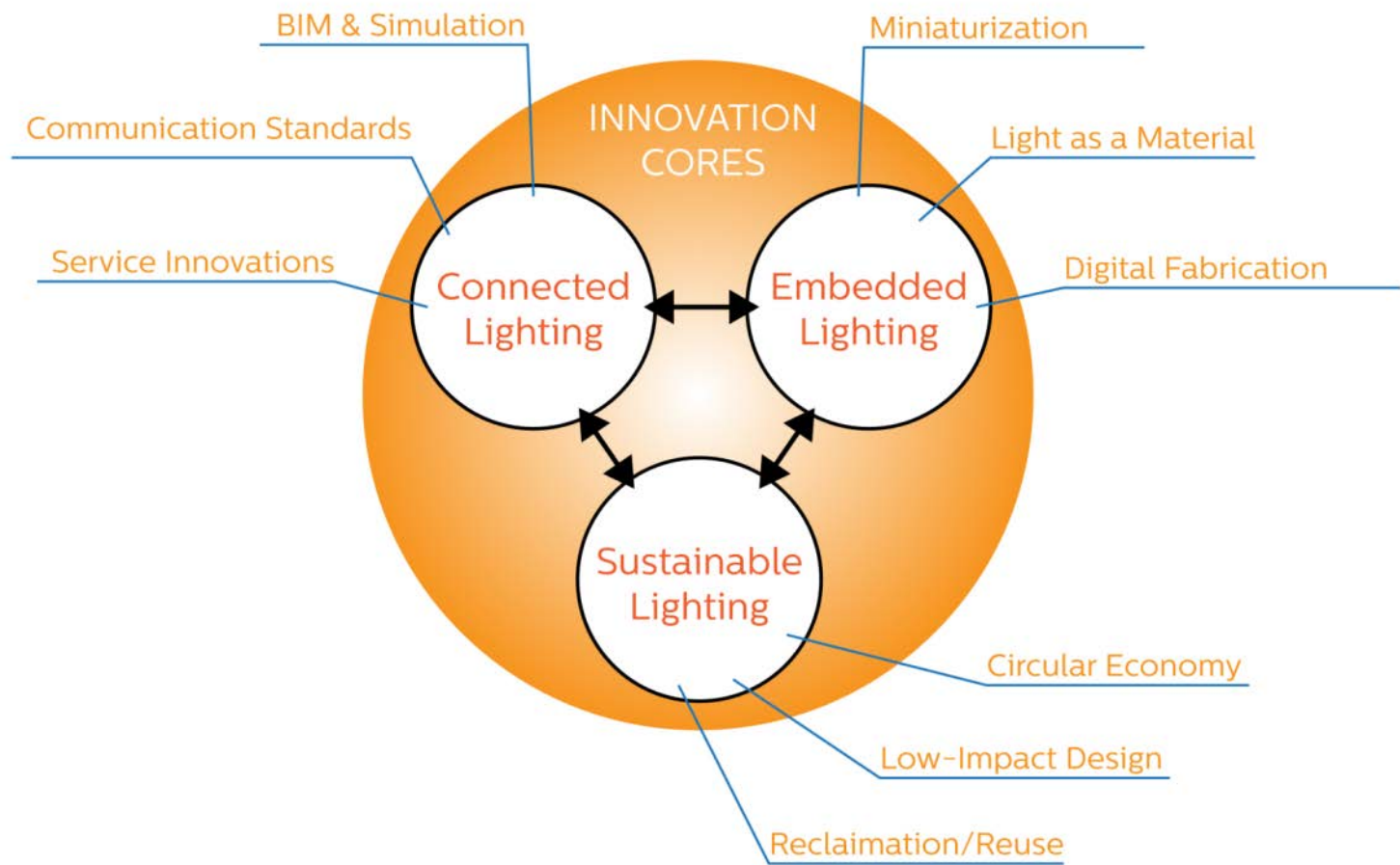




Embedded Lighting

The future of integrating lighting into
architectural materials



A revolution has occurred in architectural construction



Harbin Opera House
MAD Architects









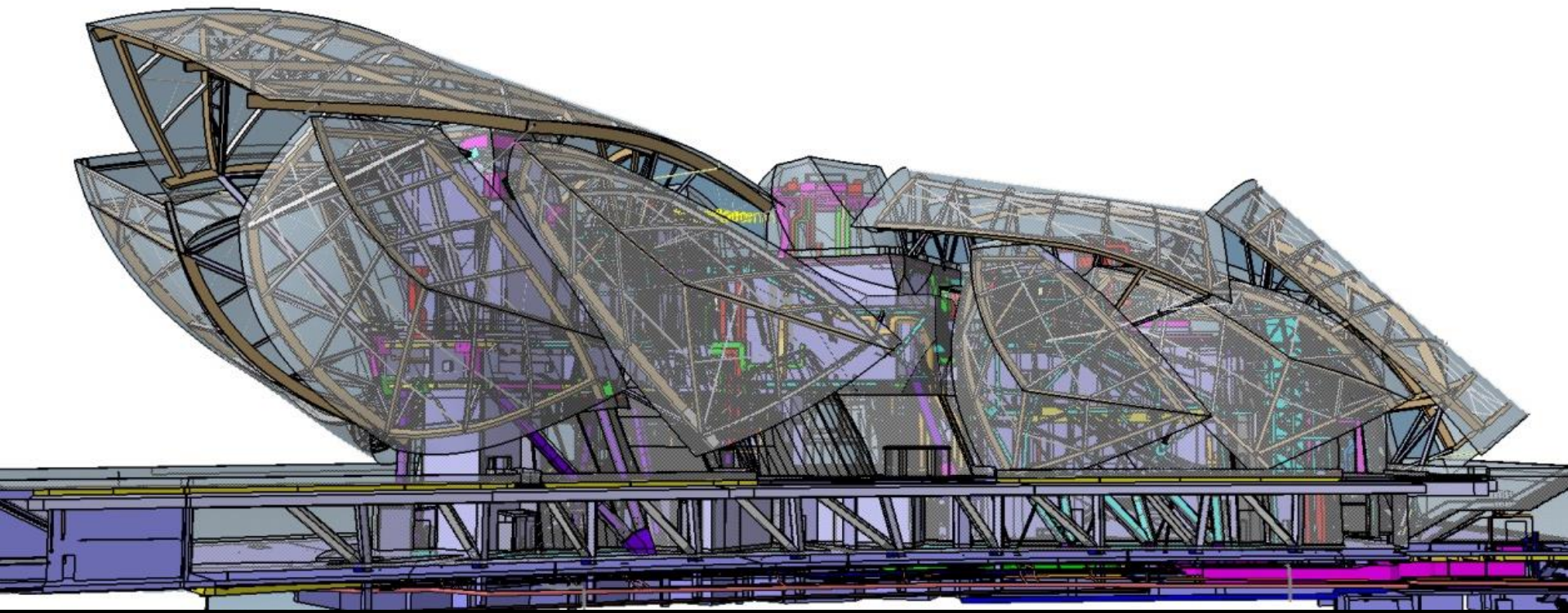








Frank Gehry
Louis Vuitton Foundation



Frank Gehry
Louis Vuitton Foundation

**Why are our
lighting systems
constrained to
“fixtures”?**





Architects want to treat light like a material



UN Studio
Taiwan Airport

Luminous solutions by Philips

Lighting

One Space



Luminous Textiles



Luminous Carpets



Luminous Patterns





Philips
Luminous
Carpets



Breakfast



WELCOME
ST C





BMW i3



Philips
Luminous
Textiles

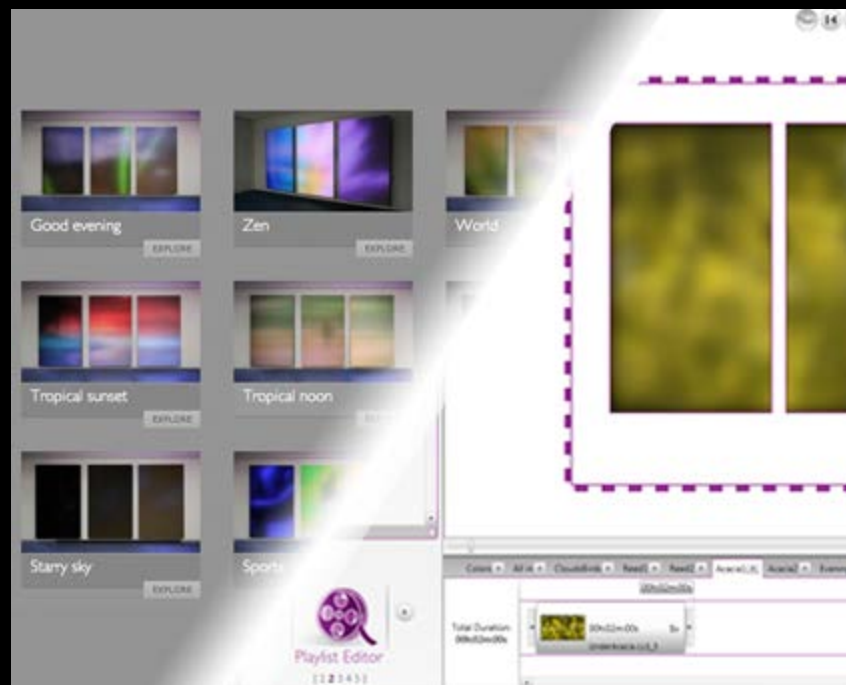
GALLERY TOTO





Kvadrat
textile

Fabric + Media Content





Philips
OneSpace



3m X 10m





Philips
Luminous
Patterns







Richard Kelly

*Pioneering mid-century
lighting designer*

3 types of lighting:

- Focal Glow
- Ambient Luminescence
- Play of Brilliants



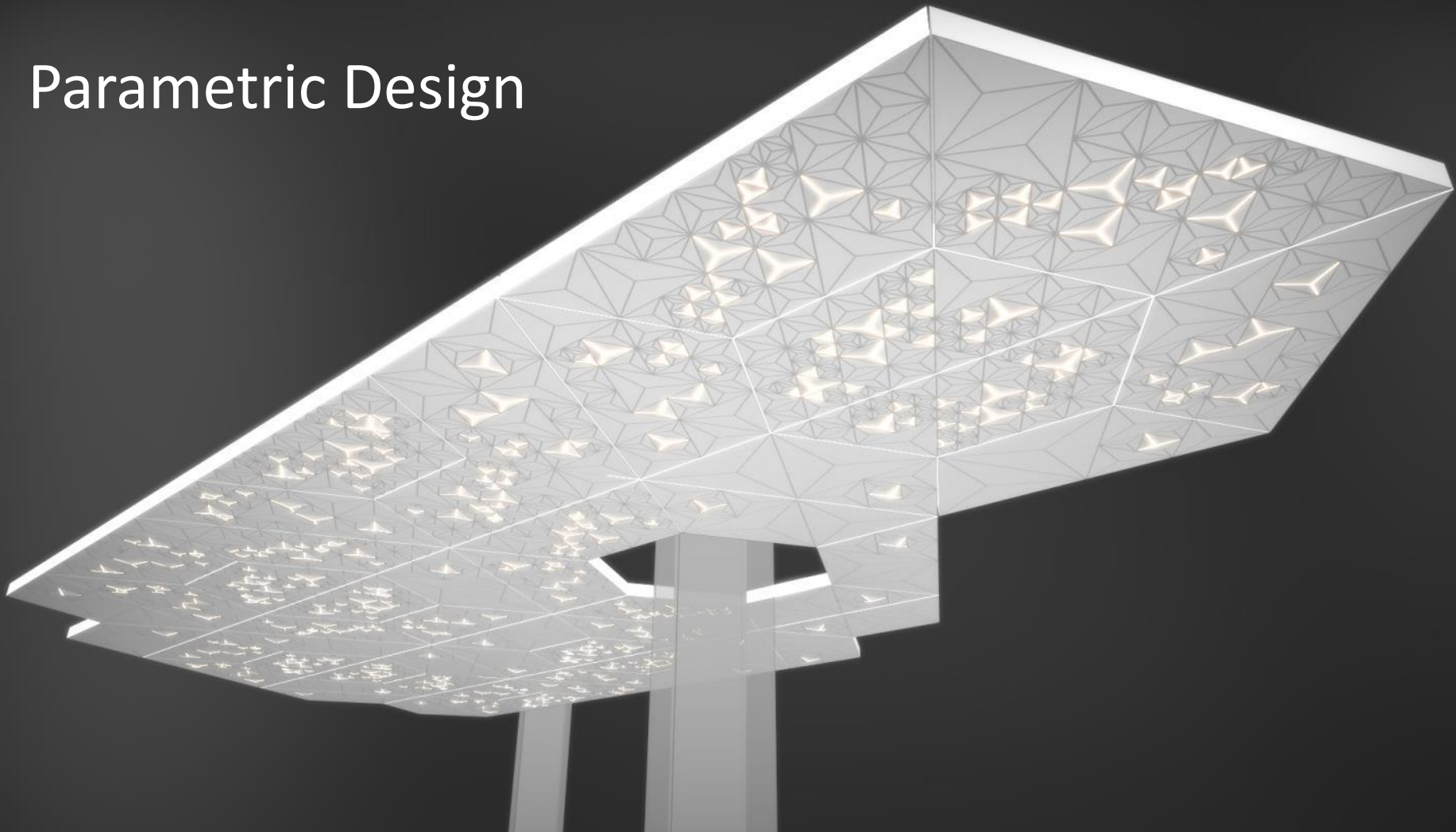








Parametric Design





Parametric Diamonds (115133 KB) - Rhinoceros 5.0 Educational (155 Days Remaining) - [Top]

File Edit View Curve Surface Solid Mesh Dimension Transform Tools Analyze Render Panels Paneling Tools V-Ray Help

789 hatches, 163 block instances, 177 curves added to selection.
Command: _Delete

Command:

Standard CPlanes Set View Select Viewport Layout Visibility Transform Curve Tools Surface

Layers

Name
Rhombus - Copy
Rhombus radial mid
LP
Circuit
Bubbles
Attraction curve - Copy
Attraction curve
Backlight
Layer 01
Default
Panel 0
0. Bounding Box
4. Vector Graphic

Properties

Viewport	
Title	Top
Width	481
Height	503
Projection	Parallel
Camera	
Lens Length	50.0
Rotation	90.0
X Location	3382.474

Top Perspective Demo Top

End Near Point Mid Cen Int Perp Tan Quad Knot Vertex Project Disable

World x 3227.85 y 296.69 z 0.00 Millimeter Curves Grid Sn Ortho Plana Osna SmartTra Gumba Record Hist Filte

Grasshopper - Parametric Diamonds*

File Edit View Display Solution Help

Prm Math Set Vec C S M X T D F L P H L A H T H M E N g U N I

Geometry Primitive Input Util

33%

Design

For testing

Preview

Read!

required functionalities

Example curves

Solution completed in ~4.2 seconds (180 seconds ago)

0.9.0076



Wall Size

5170 hgth (mm)

2051 Wall Height (mm)

X Panels 7

5 Y Panels

Vertical Orientation

Design Parameters

0 Different Curves

Symmetrical/Assymet...

20 Attraction EXTRA curve

A 222 on Light Modules

MAX 26 bond Size

2 Print Thickness

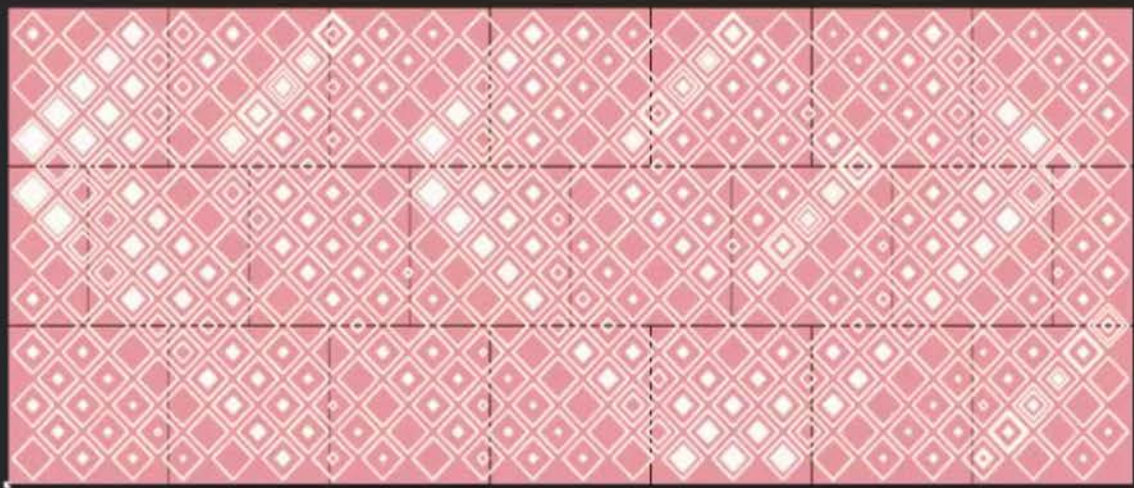
Colors

PCB Color

Panel Color

Print Color

Show Panel Lines





Embedded Lighting:

What does the future hold?

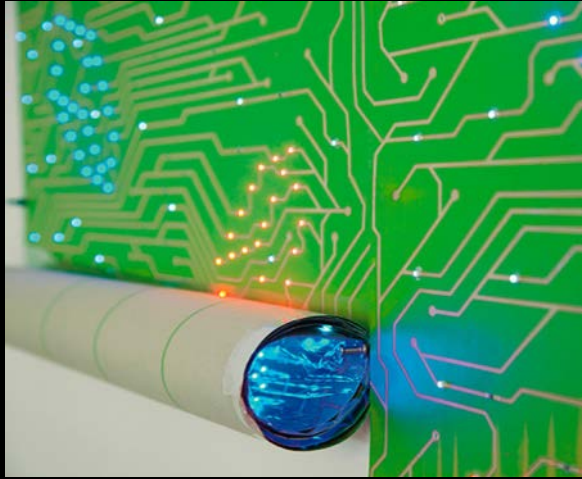
The future?

Light as a material

“...the integration of energy harvesting, sensing, control, and illumination into a single, flexible, high-volume, eco-friendly material...”

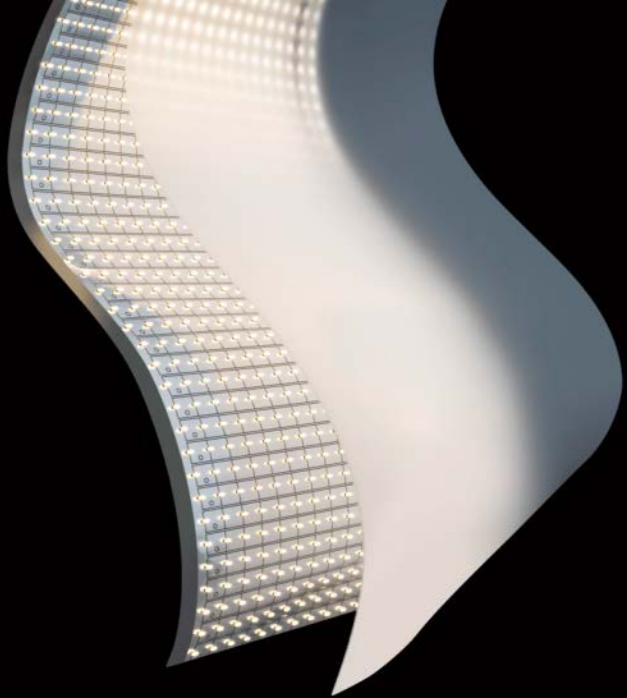
Sheila Kennedy, Harvard Graduate School of Design (1999)





LED wallpaper

LED Wallpaper (2011)
Ingo Maurer



Planar sheets of light

Cooledge Lighting (2014)
StoneGate Design

The future?

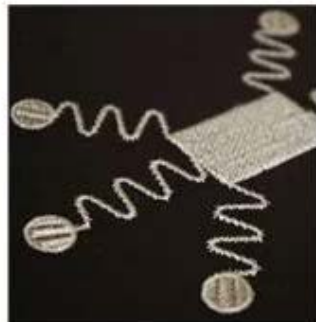
Light as a textile



E-Static Shadows (2009)
Zane Berzina, et al

The future?

Light as a textile



Forster Rohner

> TEXTILE CONDUCTORS

> TEXTILE HEATING

> TEXTILE SENSORS

> ILLUMINATED TEXTILES

The future?

Light as sheet



BIM/Parametric/Digital Fab



Light as a Material



Healthy Light

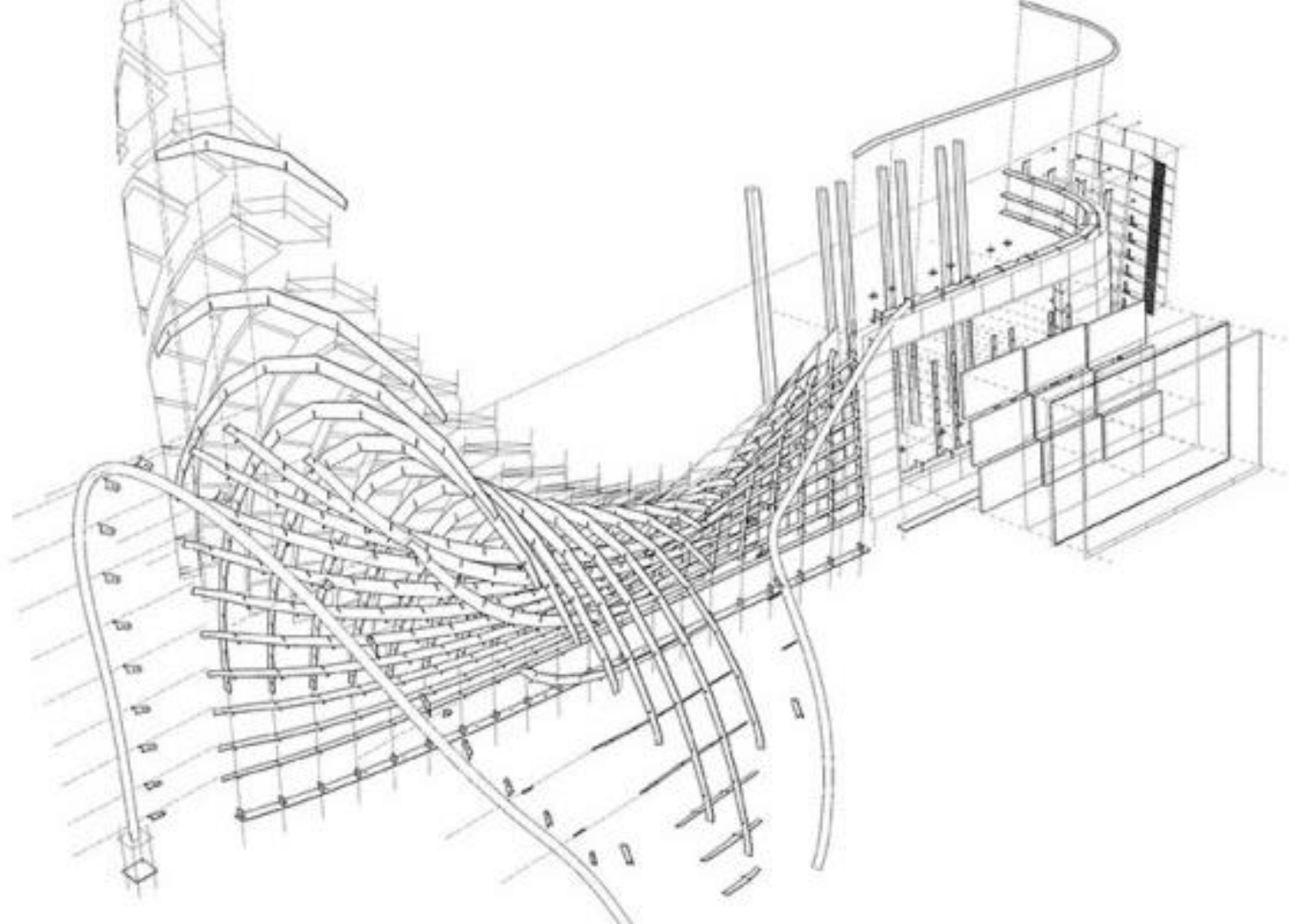




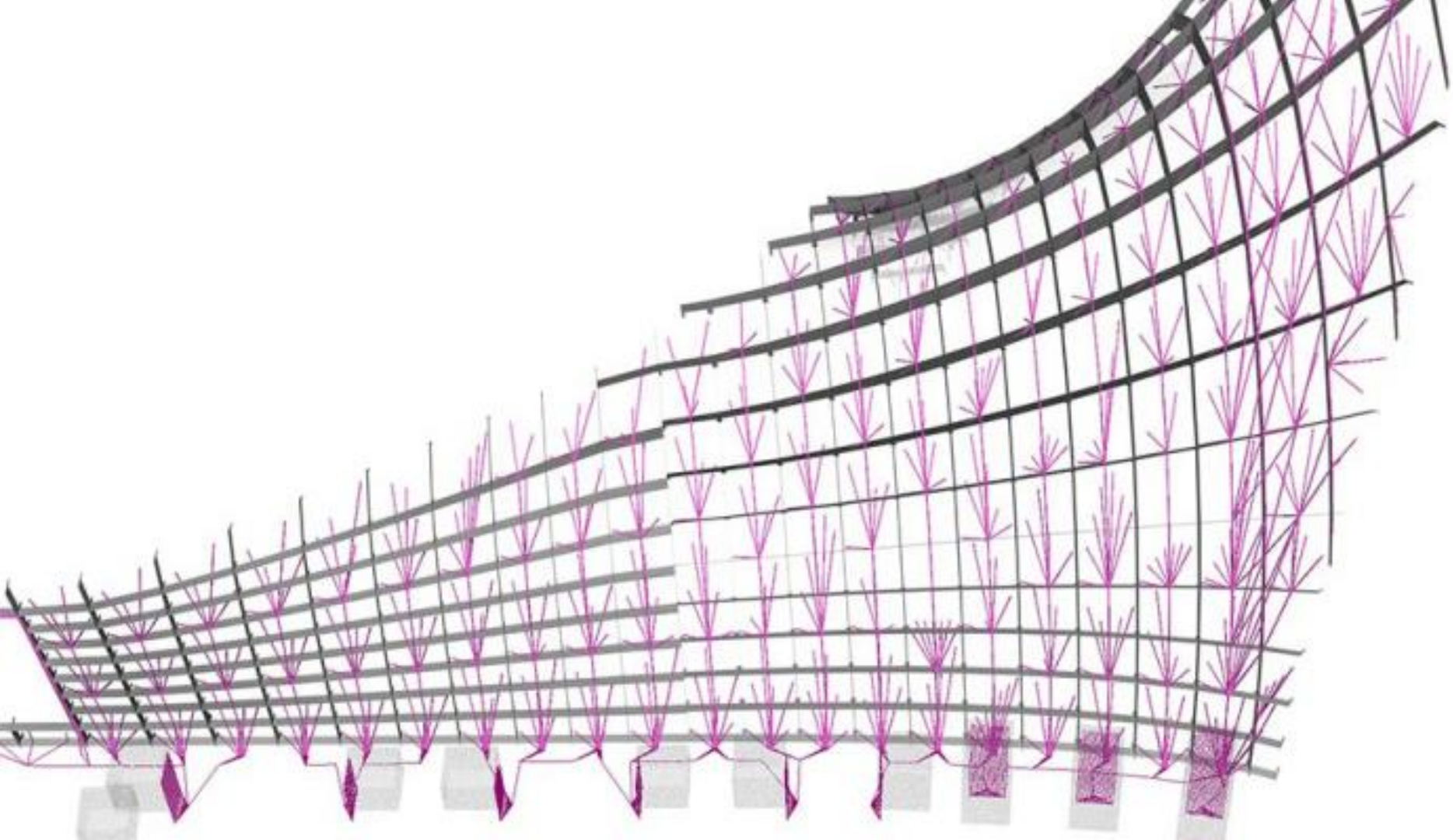


Aurora – DirectTV Headquarters (2013)
Electroland



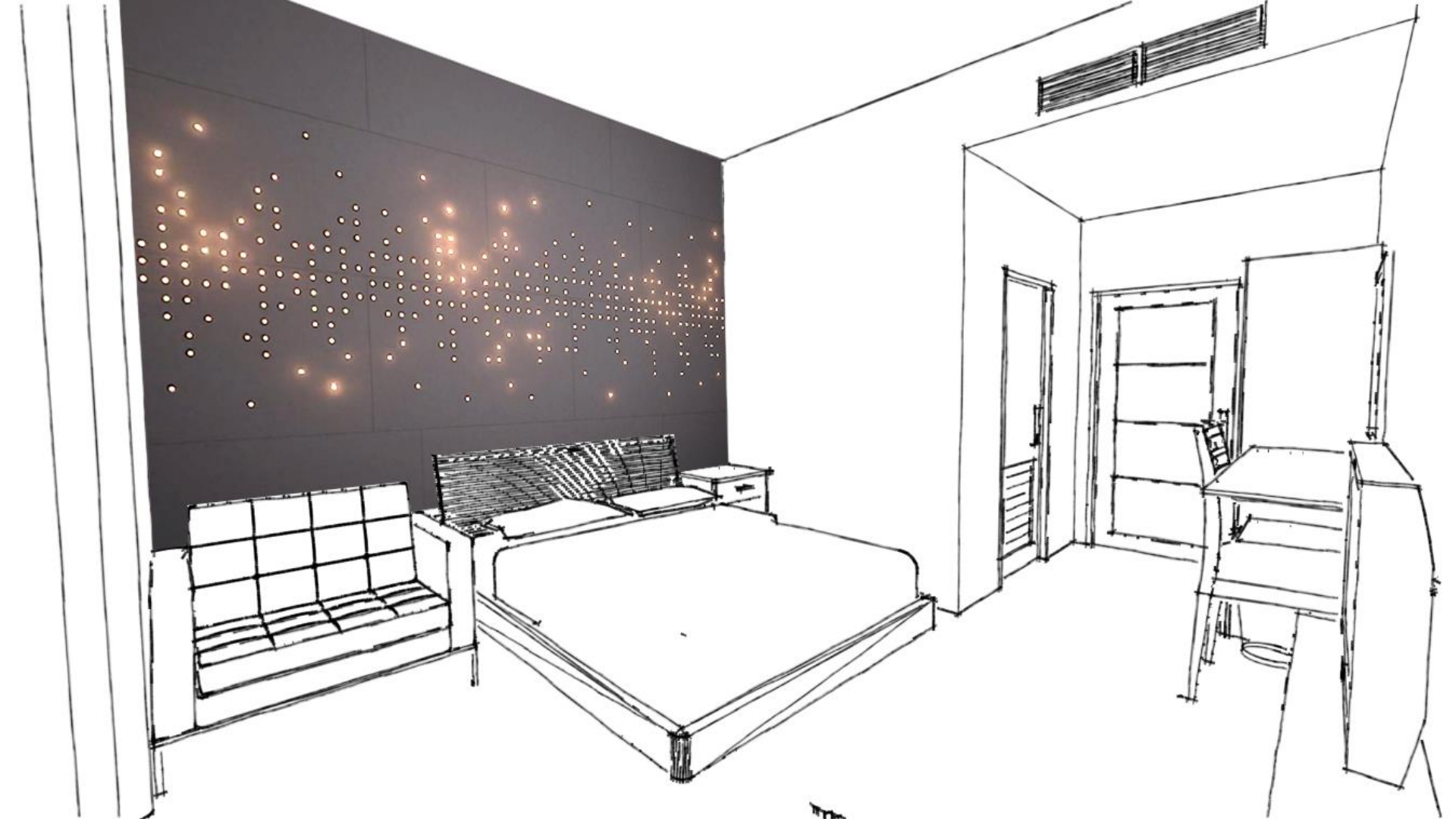


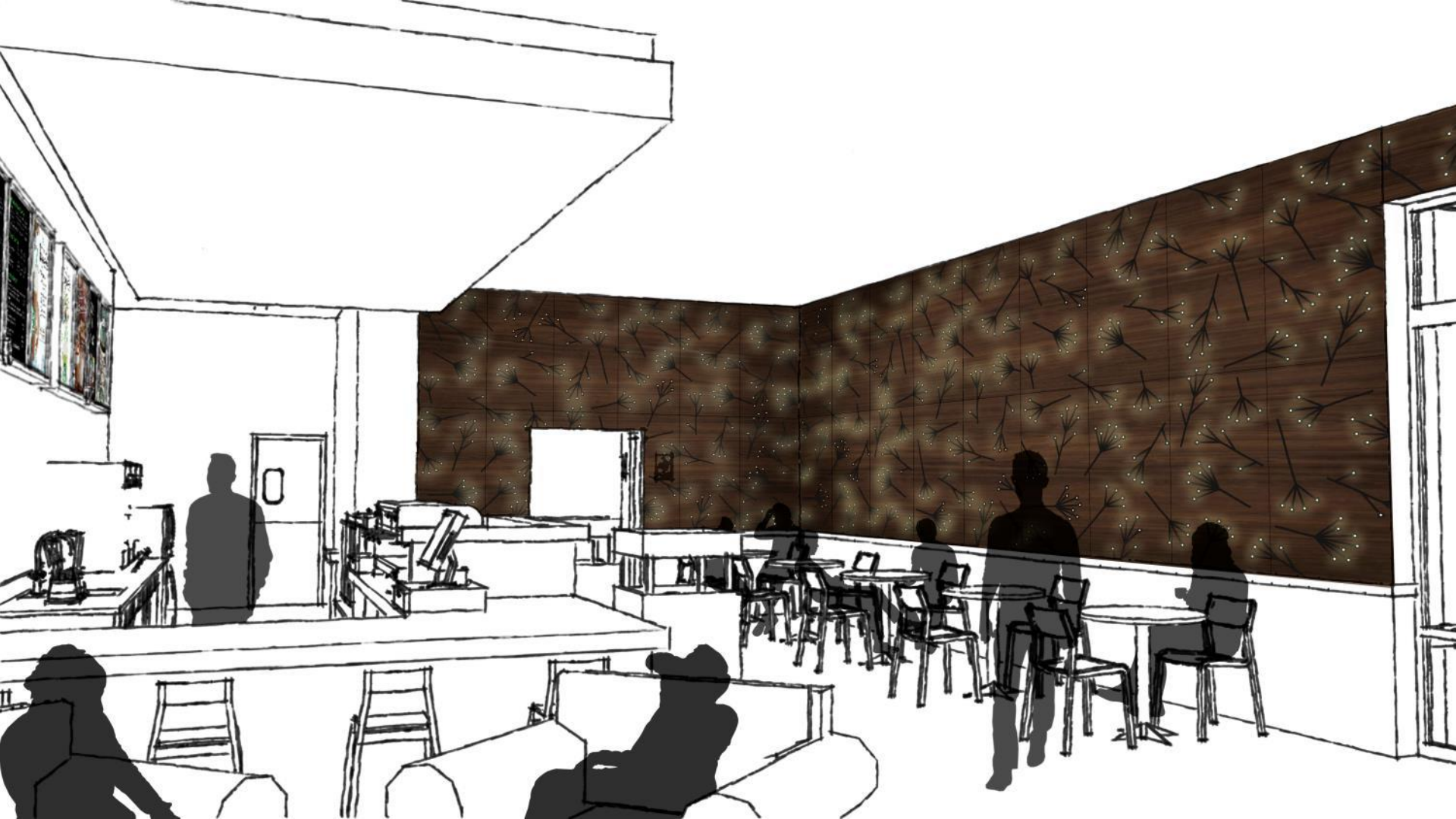


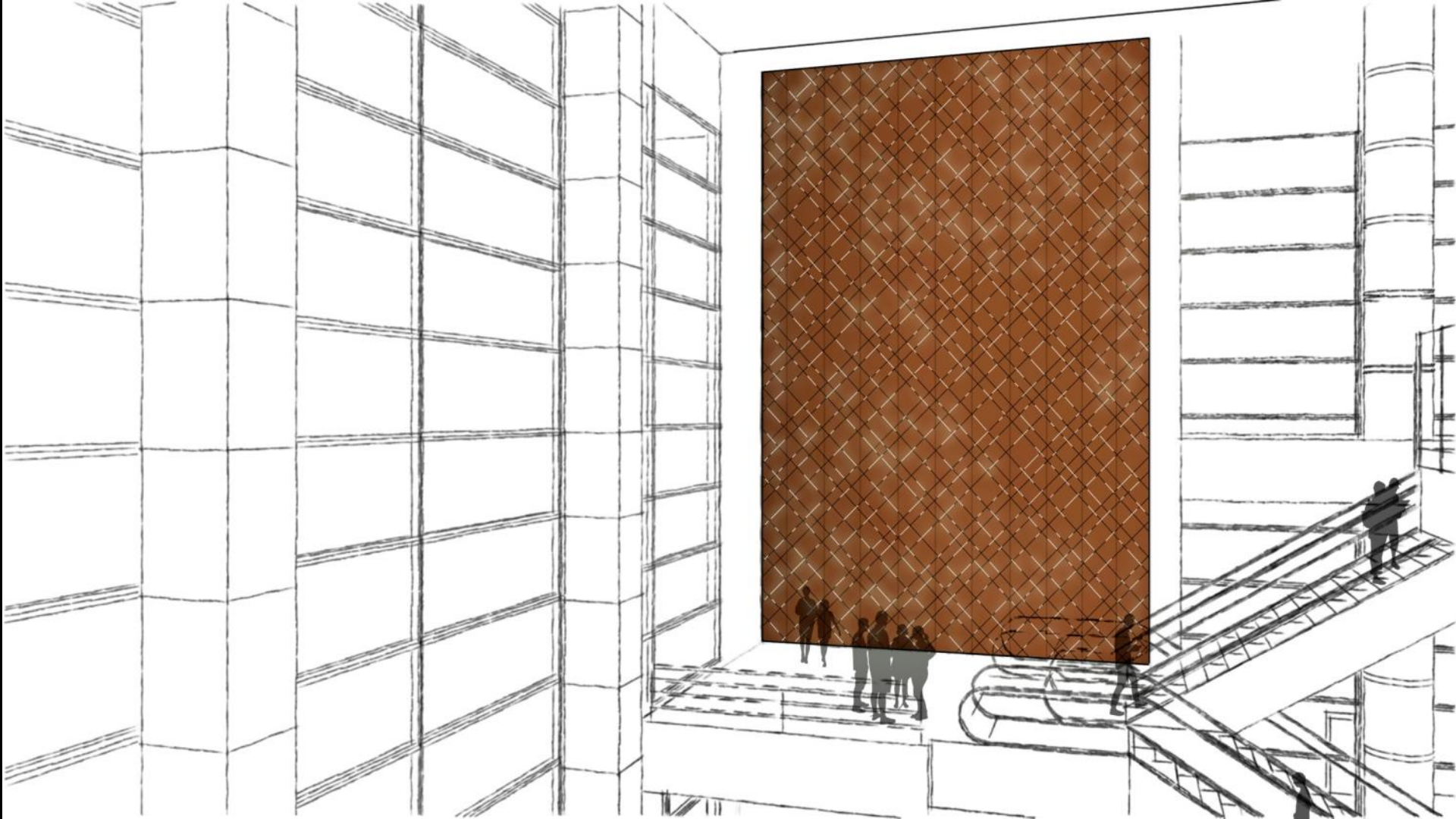




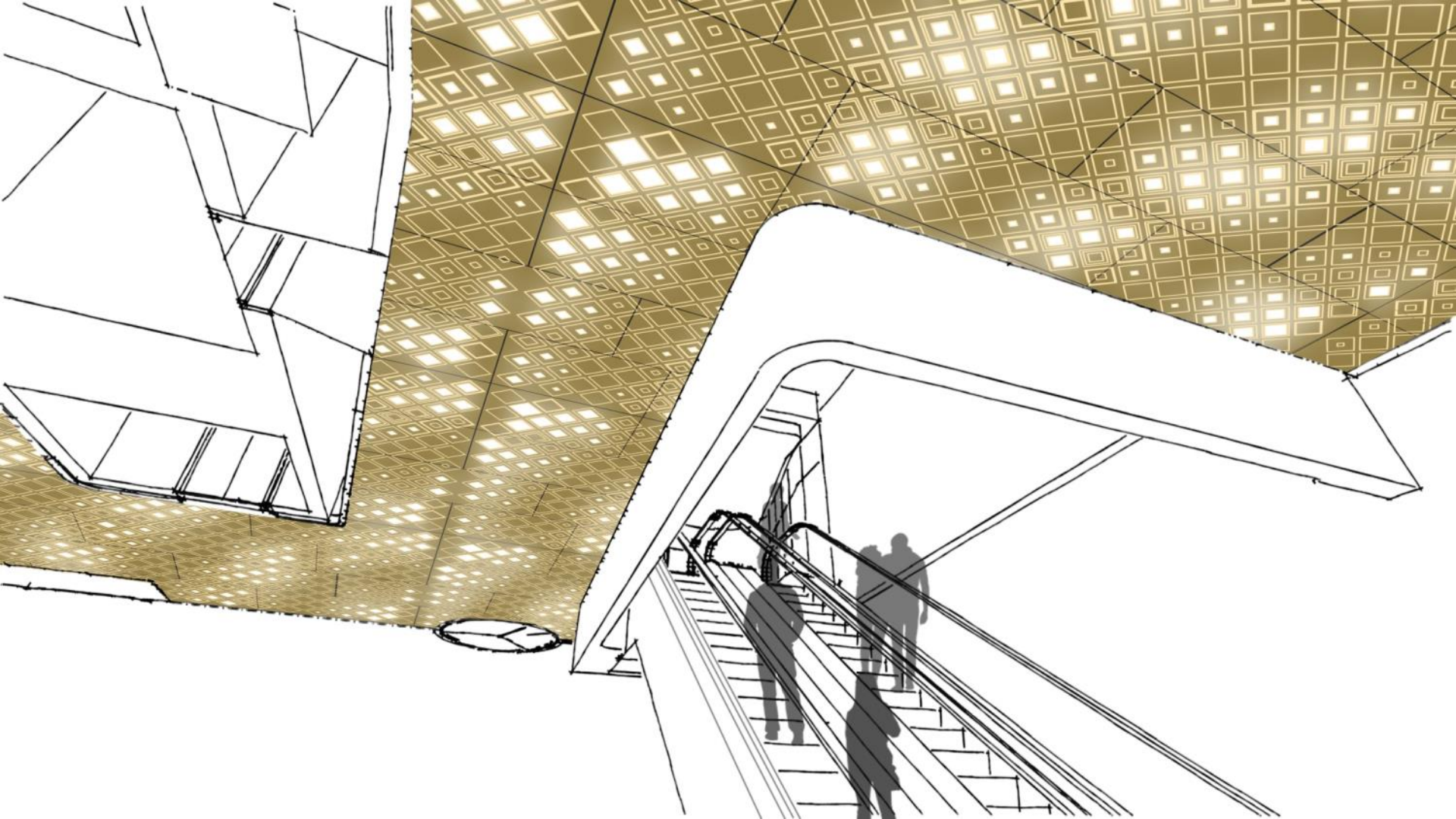


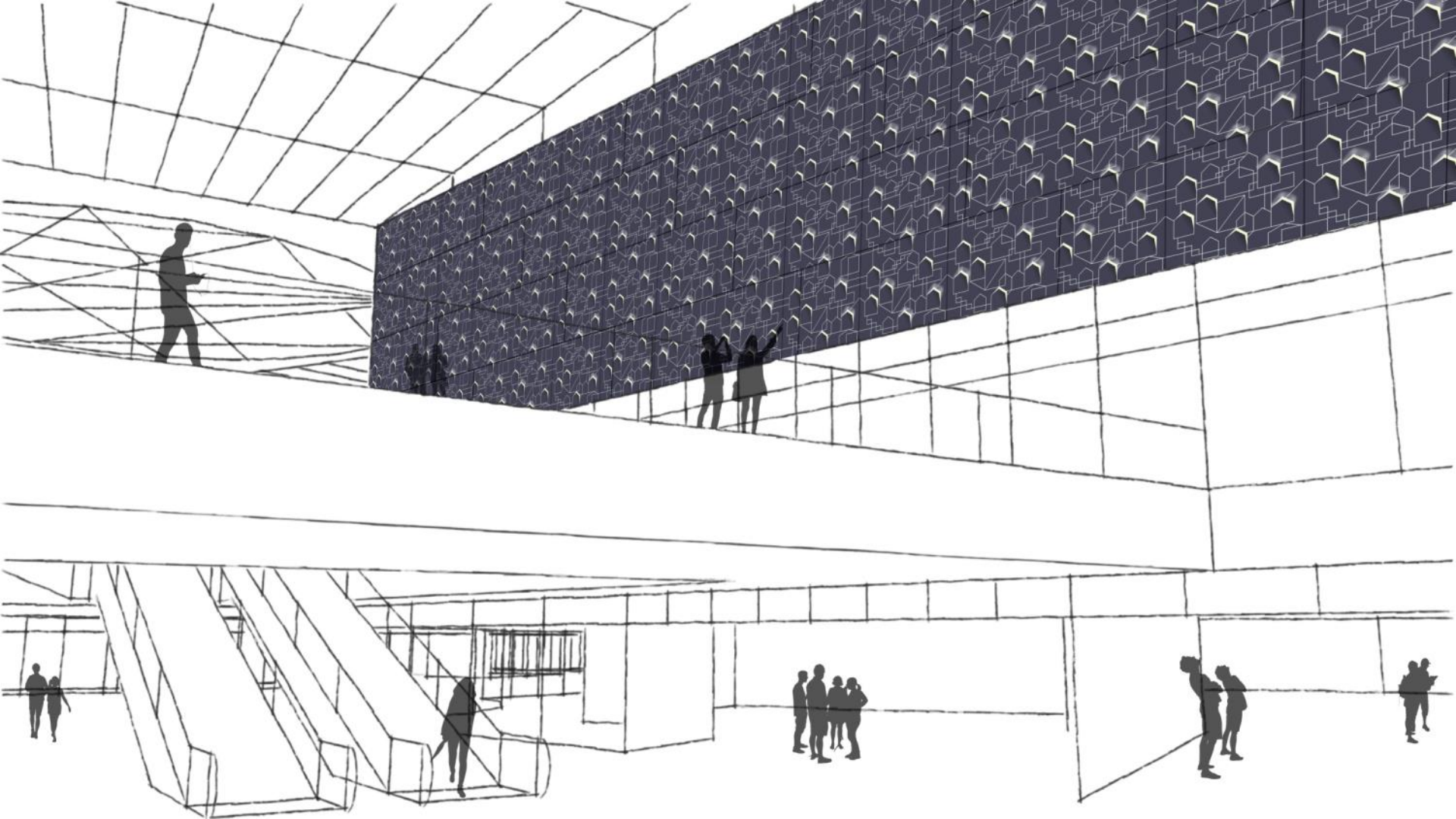














Thank you!

brad.koerner@philips.com

www.lucept.com